

DRAWING AMENDMENTS:

Replacement sheets for FIG. 1 and 2 marked with the legend "Prior Art" are submitted herewith.

REMARKS

The Examiner's Action mailed on April 18, 2007, has been received and its contents carefully considered.

In this Amendment, Applicant has editorially amended the specification, amended claims 1, 3, 4, 7, 9, 11 and 13-16, added new claims 18-27 and cancelled claim 12 without prejudice. Claims 1, 7, 11, 13, 18, 21 and 24 are the independent claims, and claims 1-11 and 13-27 are pending in the application. For at least the following reasons, it is submitted that this application is in condition for allowance.

Applicant wishes to thank the Examiner for indicating claims 3, 5, 9, 15 and 17 as allowable if rewritten in independent form, although objecting to these claims as dependent from rejected claims. Accordingly, the providing, comparing and locating features of claims 3, 9 and 15 have been added to independent claims 1, 7 and 13, and the formula of claims 5 and 17 has been added to independent claim 11. It is therefore respectfully requested that these objections be withdrawn.

The drawings were objected to under 37 CFR §1.83(b) on the grounds that FIG. 1 and 2 should be marked as prior art and that all elements of independent claim 7 are not shown completely in the drawings. The Applicant respectfully requests that the objections be withdrawn for the following reasons.

Regarding FIG. 1 and 2, suitably marked replacement sheets are submitted herewith.

In claim 7, the means for calculating phase differences can correspond to

the delta-phase calculator **304** in FIG. 3, and the related description is given on page 9, lines 10-16. The means for detecting the burst sequence can correspond to the flat line detector **308** in FIG. 3, and its operational principles can be mapped into the steps **500-514** of FIG. 5, especially as described on page 11, lines 4-29, and page 12, lines 1-3. The means for estimating a burst frequency can correspond to the flat line detector **308** in FIG. 3, and its operational principles can be mapped into the step **514** in FIG. 5, especially as described on page 12, lines 2-5. Hence FIG. 3 and 5 show every feature of the invention specified in claim 7, and this objection against the drawings should be withdrawn.

Claims 1, 6, 7, 10 and 13 were rejected under 35 USC §103(a) as obvious over the combination of *Mobin* (US 5,748,682) with *Asahara et al.* (US 6,353,642 B1). This rejection is respectfully traversed.

In order for a claim to be properly rejected under 35 USC §103(a), the teachings of the prior art reference must suggest all features of the claimed invention to one of ordinary skill in the art. See, e.g., *In re Dow Chemical*, 837 F.2d 469, 5 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1988); *In re Keller*, 642 F.2d 413, 208 U.S.P.Q. 871, 881 (C.C.P.A. 1981).

Claim 1 has been amended as follows:

A delta-phase detection method for identifying a burst sequence in a received signal, comprising the steps of:
calculating phase differences of every two consecutive samples in the received signal;
detecting the burst sequence and locating an end of the burst sequence by comparing each of the phase differences with an upper threshold and a lower threshold, wherein locating the end of the burst sequence further comprises:

counting a number of successive phase differences within an allowable detecting range, and storing the number of successive phase differences in a counter;
providing a valid counting range according to an expected duration of the burst sequence;
comparing the number in the counter with the valid counting range; and
locating the end of the burst sequence when the number in the counter is within the valid counting range; and
estimating a burst frequency of the burst sequence once the burst sequence is detected.

(Emphasis Added)

Claim 7 has been amended as follows:

A signal processor for identifying a burst sequence in a received signal, comprising:
means for calculating phase differences of every two consecutive samples in the received signal;
means for detecting the burst sequence and locating an end of the burst sequence by comparing each of the phase differences with an upper threshold and a lower threshold, wherein said means for locating the end of the burst sequence further comprises:
means for counting a number of successive phase differences within an allowable detecting range, and storing the number of successive phase differences in a counter;
means for providing a valid counting range according to an expected duration of the burst sequence;
means for comparing the number in the counter with the valid counting range; and
means for locating the end of the burst sequence when the number in the counter is within the valid counting range; and
means for estimating a burst frequency of the burst sequence once the burst sequence is detected.

(Emphasis Added)

And claim 13 has been amended as follows:

A method for maintaining synchronization between a mobile radio station having a local oscillator oscillating at a local oscillating frequency, and a base station by identifying a burst sequence in a received signal received by the mobile radio station, comprising the steps of:
determining a burst frequency of the burst sequence by a delta-phase detecting method, wherein the delta-phase detecting method comprises:
calculating phase differences of every two consecutive samples in the received signal;
comparing each of the phase differences with an upper threshold and a lower threshold;

counting a number of successive phase differences within an allowable detecting range, and storing the number of successive phase differences in a counter;
 providing a valid counting range according to an expected duration of the burst sequence;
 comparing the number in the counter with the valid counting range;
 locating the end of the burst sequence when the number in the counter is within the valid counting range;
 estimating the burst frequency of the burst sequence once the burst sequence is detected; and
 adjusting the local oscillating frequency of the local oscillator according to the frequency of the burst sequence to maintain the synchronization.

(Emphasis Added)

Neither *Mobin* nor *Asahara et al.* discloses a method or a device either “providing a valid counting range according to an expected duration of the burst sequence” or “comparing the number in the counter with the valid counting range”, or “locating the end of the burst sequence when the number in the counter is within the valid counting range”. All these features, however, are required by each of independent claims 1, 7, and 13, and were originally recited in claims 3, 9 and 15, which were indicated as containing allowable subject matter.

Consequently, neither *Mobin* nor *Asahara et al.*, whether taken separately or in combination, teaches or suggests all features of any of independent claims 1, 7 or 13, and hence these claims are allowable.

Further, as independent claims 1, 7, and 13 are allowable, their respective dependent claims 2-6, 8-10, and 14-17 are also allowable as a matter of law, for at least the reason that these dependent claims contain all features of independent claims 1, 7, and 13 from which they respectively depend. *In re Fine*, 837 F.2d

1071, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

Claims 2, 8 and 14 were rejected under 35 USC §103(a) as obvious over the combination of *Mobin* with *Asahara et al.* and *Willis* (US 4,647,968). This rejection is respectfully traversed.

As claims 2, 8 and 14 depend from claims 1, 7 and 13 respectively, and as *Willis* fails to remedy the deficiencies of *Mobin* and *Asahara et al.* with respect to claims 1, 7 and 13, claims 2, 8 and 14 are therefore also allowable.

Claims 4, 12 and 16 were rejected under 35 USC §103(a) as obvious over the combination of *Mobin* with *Asahara et al.* and *Bourzeix* (US 6,393,071 B1). This rejection is respectfully traversed.

Claim 4 depends from claim 1, claim 12 has been cancelled and claim 16 depends from claim 13. Concerning claim 12 the rejection is moot, whereas in relation to claims 4 and 16, *Bourzeix* fails to remedy the deficiencies of *Mobin* and *Asahara et al.* with respect to claims 1 and 13 respectively, and therefore claims 4 and 16 are allowable.

Claim 11 was rejected under 35 USC §103(a) as obvious over the combination of *Willis* with *Asahara et al.* This rejection is respectfully traversed.

Claim 11 has been amended as follows:

A delta-phase detection system for identifying a burst sequence in a received signal, comprising:
a band pass filter, receiving and filtering the received signal to eliminate noise;
a delta-phase calculator, coupling to the band pass filter and calculating phase differences of every two consecutive samples in the received signal;
a low pass filter, smoothing variations of the phase differences calculated by the delta-phase calculator; and

a flat line detector, detecting the burst sequence [and], locating the end of the burst sequence by comparing each of the phase differences received from the low pass filter with an upper threshold and a lower threshold, and estimating a burst frequency of the burst sequence by using a linear equation to calculate the burst frequency of the burst sequence from the upper threshold and the lower threshold once detecting the burst sequence, wherein the linear equation is averaging the upper threshold (A) and the lower threshold (B), and multiplying a sampling frequency (f_s) over two times a ratio of the circumference of a circle

to its diameter ($f = \frac{(A + B) * f_s}{4\pi}$).

(Emphasis Added)

Neither *Willis* nor *Asahara et al.*, whether taken separately or in combination, discloses, teaches, or suggests use of the equation above to estimate the frequency of the burst sequence, as also recited in dependent claims 5 and 17, which were indicated as containing allowable subject matter. Therefore, claim 11 is patentable over the combination of *Willis* with *Asahara et al.*.

Claims 18-27 have been newly added to further define and/or clarify the scope of the invention, without adding new matter. Each of claims 18-27 are patentable over *Mobin*, *Asahara et al.*, *Willis*, and *Bourzeix*, whether taken separately or in combination, as the references fail to teach or suggest all features of any of new independent claims 18, 21 or 24.

It is submitted that this application is in condition for allowance. Such action and the passing of this case to issue are requested.

Should the Examiner feel that a conference would help to expedite the prosecution of this application, the Examiner is hereby invited to contact the undersigned counsel to arrange for such an interview.

Should any fee be required, however, the Commissioner is hereby authorized to charge the fee to our Deposit Account No. 18-0002, and advise us accordingly.

Respectfully submitted,

July 16, 2007
Date



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